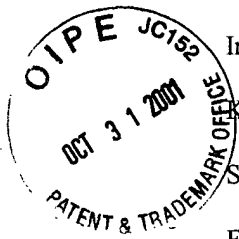


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JC14 Rec'd PCT/PTO 31 OCT 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re Application of:

Kinkade et al.

Serial No. 09/831,123

Filed: May 4, 2001

Group: 1635

Examiner: Not Assigned

Confirmation No.: 8722

For: BIOMARKERS FOR OXIDATIVE STRESS

**NOTIFICATION OF PATENT OFFICE ERROR  
IN INTERNATIONAL APPLICATION NUMBER ON FILING RECEIPT**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

Applicants hereby notify the United States Patent and Trademark Office of an error in the International Application Number on the Filing Receipt.

The correct International Application Number is PCT/US99/26133 not PCT/US99/06133. The correct International Application Number was submitted with the Applicants' Transmittal Letter To The United States Designated/Elected Office (DO/EO/US) Concerning A Filing Under 35 U.S.C. 371; a photocopy of this transmittal letter is enclosed. Also included is a copy of the front page of the published application showing the correct International Application Number. The correct International Application Number was also submitted on the executed Inventors' Declaration.

A first request to correct this error was submitted on June 29, 2001. Please correct the International Application Number and send confirmation of the revision to the undersigned. The need for correction is not due to any error by Applicants and it is believed that no fee is due. If this is incorrect, however, please charge any requisite fees to Deposit Account No. 07-1969.

Respectfully submitted,

*Susan K. Doughty*

Susan K. Doughty

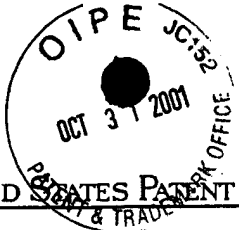
Reg. No. 45,495

GREENLEE, WINNER AND SULLIVAN, P.C.  
5370 Manhattan Circle, Suite 201  
Boulder, CO 80303  
Telephone: (303) 499-8080  
Facsimile: (303) 499-8089  
E-mail: [winner@greenwin.com](mailto:winner@greenwin.com)

Attorney Docket No. 68-97  
Ila: October 31, 2001

CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for Express Mail in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231	
Date	October 31, 2001 <i>Loretta Allemenos</i>
EL 827990115 US Express Mail Tracking Number	

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COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. 20231  
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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/831,123	08/13/2001	1635	1569	68-97	17	81	18

CONFIRMATION NO. 8722

## FILING RECEIPT



\*OC00000006919626\*

Greenlee Winner & Sullivan  
Suite 201  
5370 Manhattan Circle  
Boulder, CO 80303

OCT 24 2001

Date Mailed: 10/18/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

Joseph M. Kinkade Jr, Decatur, GA;  
Raymond Shapira, Atlanta, GA;  
Peter E. Jensen, Atlanta, GA;  
Ngoc-Anh Le, Decatur, GA;  
Jan Pohl, Tucker, GA;  
W. Virgil Brown, Atlanta, GA;

## Domestic Priority data as claimed by applicant

PCT/US99/2 6133

THIS APPLICATION IS A 371 OF PCT/US99/06133 11/05/1999  
WHICH CLAIMS BENEFIT OF 60/107,404 11/06/1998

## Foreign Applications

Projected Publication Date: Not Applicable, filed prior to November 29,2000

Non-Publication Request: No

Early Publication Request: No

\*\* SMALL ENTITY \*\*

Title

Biomarkers for oxidative stress

DOCKETED

OCT 24 2001

SKD

Greenlee, Winner, Sullivan

ENT'D OCT 24 2001

Preliminary Class  
435

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**LICENSE FOR FOREIGN FILING UNDER  
Title 35, United States Code, Section 184  
Title 37, Code of Federal Regulations, 5.11 & 5.15**

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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FORM PTO-1390  
(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

68-97

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

INTERNATIONAL APPLICATION NO.  
PCT/US99/26133INTERNATIONAL FILING DATE  
05.11.99PRIORITY DATE CLAIMED  
06.11.98

## TITLE OF INVENTION

Biomarkers for Oxidative Stress

APPLICANT(S) FOR DO/EO/US Joseph M. Kinkade, Jr., Raymond Shapira, Peter E. Jensen  
Ngoc-Anh Le, Jan Pohl, and W. Virgil Brown

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(6)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information: Certificate of Mailing by Express Mail

21. ☒ The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1,000.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$ 690.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☒ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 130.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	81 - 20 =	61	x \$18.00	\$ 1,098.00
Independent claims	17 - 3 =	14	x \$80.00	\$ 1,120.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$

TOTAL OF ABOVE CALCULATIONS = \$ 3,038.00

☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.

SUBTOTAL = \$ 1,519.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)).

TOTAL NATIONAL FEE = \$

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property.

TOTAL FEES ENCLOSED = \$ 1,519.00

Amount to be refunded: \$

charged: \$

- a. ☒ A check in the amount of \$ \$1,519.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 07/1969. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Susan K. Dougherty  
Greenlee, Winner and Sullivan, P.C.  
5370 Manhattan Circle, Suite 201  
Boulder, Colorado 80303  
Phone: (303) 499-8080  
Fax: (303) 499-8089

SIGNATURE

Susan K. Dougherty

NAME

43,595

REGISTRATION NUMBER

# CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)

Applicant(s): Kinkade et al.

Docket No.

68-97

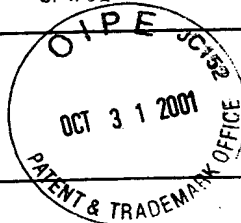
Serial No.  
not assigned

Filing Date  
5/4/01

Examiner  
not assigned

Group Art U  
not assigned

Invention:  
Biomarkers for Oxidative Stress



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37 CFR 1.10 in an envelope addressed to: The Commissioner of Patents and Trademarks, Washington, D.C.

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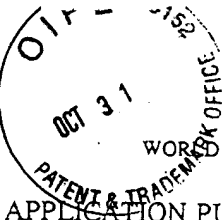
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification<sup>7</sup> : C12Q 1/02, 1/26, 1/68, G01N 31/00, 33/00, 33/15, 33/53, C07C 61/06, C12N 1/21, 9/64, 9/50, 15/09, C07K 1/22, 14/53, 14/525, A61K 38/19, 49/00</p>	<p>A1</p>	<p>(11) International Publication Number: WO 00/28072 (43) International Publication Date: 18 May 2000 (18.05.00)</p>
<p>(21) International Application Number: PCT/US99/26133 (22) International Filing Date: 5 November 1999 (05.11.99) (30) Priority Data: 60/107,404 6 November 1998 (06.11.98) US (71) Applicant (for all designated States except US): EMORY UNIVERSITY [US/US]; 2009 Ridgewood Drive, Atlanta, GA 30322 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): KINKADE, Joseph, M., Jr. [US/US]; 2384 Burnt Creek Road, Decatur, GA 30033 (US). SHAPIRA, Raymond [US/US]; 954 Liawen Court, N.E., Atlanta, GA 30329 (US). JENSEN, Peter, E. [US/US]; 2375 Cumberland Court, Snellville, GA 30078 (US). LE, Ngoc-Anh [US/US]; 723 Carlyle Lake, Decatur, GA 30033 (US). POHL, Jan [US/US]; 4093 Gladney Drive, Doraville, GA 30340 (US). BROWN, W., Virgil [US/US]; 3208 Habersham Road, Atlanta, GA 30305 (US).</p>	<p>(74) Agents: DOUGHTY, Susan, K. et al.; Greenlee, Winner and Sullivan, P.C., Suite 201, 5370 Manhattan Circle, Boulder, CO 80303 (US). (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report.</p>	

(54) Title: BIOMARKERS FOR OXIDATIVE STRESS

(57) Abstract

This invention relates generally to methods of detecting and quantifying biomarkers of oxidative stress in proteins. The biomarker may be any amino acid that has undergone oxidation (or other modification, e.g. chloro-tyrosine, dityrosine). Emphasis is given herein on oxidized sulfur- or selenium-containing amino acids (SSAA). The biomarker of oxidative stress in proteins may be detected with an antibody that binds to oxidized amino acids, specifically oxidized sulfur- or selenium-containing amino acids. The antibody may be monoclonal or polyclonal. The presence of biomarker or amount of biomarker present in a sample may be used to aid in assessing the efficacy of environmental, nutritional and therapeutic interventions, among other uses.

COPY